

**NASA Space Shuttle Program (SSP)
Mission Management Team (MMT) STS-114
Minutes of Meeting
August 4, 2005**

The STS-114 Flight Day 10 (FD10) MMT meeting, chaired by Deputy Manager, SSP, JSC-MA/Wayne Hale, was held August 4, 2005 at 10:00 a.m. Central Time (CT), Johnson Space Center (JSC), Building 30, Room 118. Member organizations supported at JSC and remote sites by video teleconference. Roster sheets for those that participated in this meeting are available. Following are highlights of the issues that were discussed.

A. Introduction – MMT Chairman

Mr. Hale gave a few introductory remarks and stated that he was proud of the work the team had done over the last 48 hours to resolve the blanket issue.

B. Flight Status – Mission Operations Directorate (MOD) Failure Summary

JSC-DA/Phil Engelauf stated that the crew was halfway through FD10 and summarized the day's mission events, as follows:

- 1) Scheduled transfers have been completed.
- 2) Three contingency water container (CWC) fills have been completed, making a total of 16 transfers so far.
- 3) Today is the final day of Multipurpose Logistics Module (MPLM) pack before MPLM hatch closure and return to Shuttle payload bay tomorrow.
- 4) Final middeck transfers remain.

Mr. Engelauf stated that FD11 planned timeline events include MPLM uninstall and berthing, Orbiter Boom Sensor System (OBSS) handoff and berthing, and middeck transfers. Other FD11 activities are contingent upon the decision whether or not to perform extravehicular activity (EVA)-4 on FD12.

C. International Space Station (ISS)

JSC-OA/Kirk Shireman reported that there are no significant issues, and ISS has technical teams supporting the EVA options.

D. Mission Integration Status

JSC-MO/Robert Galvez, STS-114 Flight Manager, stated that there were no significant issues, and they had received the go-ahead from the crew to transfer the Payload General Support Computer (PGSC) laptops.

E. EVA

JSC-XA/Stephen Doering stated that all Extravehicular Mobility Units (EMUs) have been

transferred, and there are no EMU issues. The team is currently examining blanket batting issues.

F. Space Shuttle Safety and Mission Assurance (S&MA)

JSC-MX/Don Totton stated that there were no new anomalies to the Risk Matrix. For Anomaly #22, port lightweight (LW) tool storage assembly latch not turning, Mr. Totton stated that one of the latches appears not to be engaged, and he noted that failure of another latch would mean a critical situation. He also stated that the issue with degradation of airlock starboard equalization valve flow was a miscategorized failure, and in-flight maintenance (IFM) would have to be used.

G. Integrated Anomalies/Issues Summary

JSC-MS/John Muratore presented the System Engineering and Integration (SE&I) Integrated Anomalies list, located on the MMT website at:

http://sspweb.jsc.nasa.gov/webdata/mmtmeeting/flt/114/050804.1000_D10/12_Integrated_Anomalies_Issues_Summary_JMuratore.pdf

H. STS-114 Damaged Thermal Blanket

JSC-MS2/Bob Ess presented updates to his conditional probability assessment charts from yesterday's MMT. He stated that yesterday's estimates regarding vertical tail and orbital maneuvering system (OMS) impacts were very conservative. New data reflects the best estimate of drag/lift. Mr. Muratore stated that the OMS pod impact is within the range of accepted risk. The revised rudder speed brake (RSB) schedule could reduce RSB impacts by an additional 50%.

I. STS-114 Blanket Impact Assessment Status

JSC-MV5/Justin Kerr stated that after extensive testing, the assessed probability of impact by the blanket outer mold line (OML) fabric is lower than reported yesterday. The worst-case numbers are <0.6% probability of impact for the OMS pod and <1.5% probability of impact for the tail/rudder. Further testing is expected to improve these probabilities. Also, the blanket release mechanism and structural impact response yields a catastrophic risk even lower than the probability of impact. It was emphasized that failure propagation has not been assessed for rudder damage.

The wind tunnel testing was discussed, and results were presented. Boeing-KSC/Dan Bell presented photographs that indicated the likelihood of more fabric loss to the blanket is low. The blanket stayed intact throughout the first and second tests. The bottom line is that mass release from the blanket would be less than 1/10 of what was originally expected.

Mr. Muratore briefed the changes to the test profiles that were presented yesterday. A chart showing the comparison of Qbar conditions illustrated that the fatigue factors from ascent were reproduced. It provides further confidence that the Shuttle can go down to

Mach 1 without incident.

Assessment was performed on the windows, and the Window Problem Resolution Team (PRT) concluded that any threat to the windows would be at low Mach numbers when the thermal protection function is complete. Mr. Kerr emphasized that the peak loads do not coincide, and the loads do not exceed capability at any time.

Structural analysis of the RSB indicates good survivability for the rudder. For the OMS pod, JSC-MV/Steve Poulos wanted to emphasize that modeling uncertainties exist that cause reduced analysis fidelity.

The thermal assessment shows that thermal is cleared, even with damage. Based on the risk assessment, the Orbiter Project Office (OPO) recommendation is for the Shuttle to return with the blanket as-is. Wind tunnel testing will continue to characterize the blanket release mechanism.

Mr. Hale polled the MMT members, and all voted to stand down on the additional EVA and accept Orbiter's decision to return with the blanket as-is.

J. 114-MMT-011 Provide Risk Analysis of Performing EVA-4 to Modify the Blanket Configuration

Action 114-MMT-011 to provide risk analysis of performing EVA-4 to modify the blanket configuration was closed based on the decision to not perform EVA-4.

K. 114-MMT-009 Complete Analysis of Potential Impact Sites to the Solid Rocket Booster (SRB) External Surface

Action 114-MMT-009 to complete analysis of potential impact sites to the SRB external surface in order to facilitate a decision to proceed with Hydrolase operations on STS-114 was closed. ATK/Cary Ralston stated that the assessments have been completed, and the SRB/Reusable Solid Rocket Motor (RSRM) Post-flight Assessment Team (SPAT) board is ready to proceed.

Based on SSP S&MA confirmation that RSRM post-flight systems and procedures comply with the current NSTS 08126, Problem Reporting and Corrective Action (PRACA) System Requirements, Mr. Hale agreed to close the PRCB actions on Program Requirements Control Board Directive (PRCBD) S062740 for JSC-MX, RSRM, and SRB to report on the STS-114 post-flight assessment process and identify how it complies with the SSP in-flight anomaly (IFA) process as documented in NSTS 08126.

L. Management Decisions Summary

As of August 4, 2005, the MMT made the following three decisions:

- There will not be an EVA to modify the window blanket, and the Shuttle will return in the current configuration.
- The SRB/RSRM hardware for post-flight processing has been released.
- The Launch on Need (LON) requirement for OV-104 has been released.

M. Conclusion

Mr. Hale stated that the next MMT is scheduled for 1:00 p.m. CDT, Friday, August 5, 2005.

Detailed information on all assigned actions for this meeting can be found on the MMT Action log, located on the MMT web site at:

http://sspweb.jsc.nasa.gov/webdata/mmtmeeting/flt/114/050804.1000_D10/Actionlog.pdf

The MMT web site is available at <http://sspweb.jsc.nasa.gov/mmt/>.

The meeting adjourned at 12:18 p.m. CT.

MMT: August 4, 2005

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Minutes Writer	Date

Approvals:

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MMT Secretary	Date

<u>J.J. Conwell</u>	<u>August 4, 2005</u>
Customer Support Room (CSR) Duty Officer	Date

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